SPECIFICATION: *We would like to insert in the current published US specification the following matter after paragraph 44 prior to the Industrial Applicability section:*

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The following methods and devices are described:

A method number 1 for modifying the probability of deexcitation, therefore the half-life, of the isomer nuclides, in which:

- one prepares a sample containing at least one isomer nuclide having a metastable state by irradiation with the means, either of a source of gamma rays emitted in a cascade, or of a generator of gamma rays coming from Bremsstrahlung of accelerated particles, with an energy higher than the threshold of excitation of the aforesaid isomer nuclide to excite the aforementioned isomer nuclide to its metastable state,

characterized:

- in that the initial half-life of at least an excited isomer nuclide of the sample prepared previously is lower than the theoretical half-life of the aforesaid nuclide, and in that this initial half-life varies with the time and the power of the irradiation source,
- in that one uses the gamma radiation of variable instantaneous half-life of at least one excited isomer nuclide, during its natural deexcitation, and in that the value of the half-life varies from the value of the initial half-life to the theoretical half-life of the aforesaid nuclide, then increases beyond this value of the aforesaid theoretical half-life.

A method number 2 according to method number 1 is characterized in that one uses samples containing at least one isomer nuclide having a metastable state, for example: Niobium (93Nb41m), Cadmium (111Cd48m), Cadmium (113Cd48m), Cesium (135Ce55m), Indium (115In49m), Tin (117Sn50m), Tin (119Sn50m), Tellurium (125Te52m), Xenon (129Xe54m), Xenon (131Xe54m), Hafnium (178Hf72m), Hafnium (179Hf72m), Iridium (193Ir77m), Platinum (195Pt78m), and some radioactive isotopes.

A method number 3 according to anyone of method number 1 or 2 is characterized in that one uses samples containing several excited isomer nuclides of which the gamma response of each one of them is measured simultaneously.

A method number 4 according to anyone of methods number 1, 2 or 3 is characterized in that one uses samples containing at least an excited isomer nuclide of which the gamma response is made up of a plurality of lines measured simultaneously.

A method number 5 according to anyone of methods number 1, 2, 3 or 4 is characterized in that the measured initial value of the initial half-life of at least one excited isomer nuclide is comprised between 10% and 100% of the theoretical value.

A method number 6 according to anyone of methods number 1, 2, 3, 4 or 5 is characterized in that one uses samples in various physical forms or various chemical forms.

A method number 7 according to anyone of methods number 1, 2, 3, 4, 5 or 6 is characterized in that one uses a sample in the form of a solution.

A method number 8 according to anyone of methods number 1, 2, 3, 4, 5, 6 or 7 is characterized in that one uses a sample having undergone a physical transformation or a chemical transformation after irradiation.

A device for the implementation of the method according to any of the methods number 1 to 8 is characterized in that it includes:

- an equipment of excitation irradiating a sample containing at least one isomer nuclide having a metastable state with the means either of a source of gamma rays emitted in cascade, or of a generator of gamma rays coming from Bremsstrahlung of accelerated particles, with an energy higher than the threshold of excitation of the aforesaid isomer nuclide to excite it in its metastable state,
- an equipment controlling the duration of irradiation of each sample according to the required initial half-life.

A use of the method according to any of methods number 1 to 8 is characterised in that it provides a low dose of radiation for a long time, starting from an initial high dose of radiation.

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